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VORTEX-ASSISTED PRESSURE CONTROL

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AT INLET OF UNDERWATER LAUNCH SYSTEM

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ABSTRACT OF THE DISCLOSURE

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A vortex-assisted pressure control system is provided for
controlling fluid flow into an inlet formed in a vehicle where
such fluid flow into the inlet occurs during vehicle movement.

10 Vortex generator(s) is (are) positioned forward of the inlet with
11 respect to forward movement of the vehicle to generate streamwise
12 vortices in the fluid as the vehicle moves through the fluid.

13 Each vortex generator is controllable to adjust strength of the
14 streamwise vortices and a lateral position of the streamwise
15 vortices relative to the inlet. Sensors are used to i) detect
16 the lateral position of the streamwise vortices relative to the
17 inlet, and ii) pressure of the fluid that has entered the inlet.

18 A controller adjusts the vortex generator(s) based on sensor
19 measurements in order to control the lateral position of the
20 streamwise vortices and the pressure of the fluid entering the
21 vehicle via the inlet.